area (p=0.03), and cavity size (p=0.04) were independent predictors of CK-MB elevation after stenting in lesions with ruptured plaque.
Conclusion: CK-MB elevation is frequent after coronary stenting in lesions with ruptured plaque. It is associated with coronary remodeling, aggressive stent expansion, and cavity size.

	No	1 to 3 x	>3 x	P value
Unstable angina (%)	69	67	56	NS
Pre-intervention				
EEM CSA (mm^2)	18.6±6.7	19.5±5.4	19.7±5.5	NS
Minimal lumen CSA (mm^2)	4.1±2.4	4.6±2.4	5.4±2.4	NS
Plaque & media CSA (mm^2)	12.2±4.6	12.6±3.5	10.6±3.5	NS
Cavity area (mm^2)	2.3±1.1	2.3±0.8	3.8±1.6	0.002
Remodeling index	1.06±0.17	1.14±0.17	1.14±0.14	NS
Thrombus (%)	50	22	33	NS
Final stent CSA (mm^2)	9.1±2.3	11.8±2.2	12.5±2.2	0.02

CSA = cross-sectional area.

11:30 a.m.

808-3 Impact of Periprocedural Plaque/Thrombus Reduction on Myocardial Injury After Stent Deployment

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Background: Larger plaque/thrombus (P/T) burden and its compression/embolization may be associated with an elevated creatine phosphokinase MB fraction (CK-MB) following percutaneous coronary intervention (PCI). The aim of this volumetric intravascular ultrasound (IVUS) study was to assess the impact of periprocedural P/T reduction on subsequent elevation of CK-MB following stenting.
Methods: Preintervention and poststent IVUS analyses were performed in 86 native coronary arteries treated by conventional stenting. Along the stented segment, IVUS parameters (volume/segment length: mm^3/mm) were measured. P/T volume was obtained as vessel volume minus lumen volume, since plaque and thrombus are difficult to distinguish. Absolute and percent P/T reductions from preintervention to poststent were also calculated. CK-MB elevation was defined as > 2 times normal, 24 hours after the PCI.
Results: Preintervention vessel and P/T volumes were significantly greater in the group with CK-MB elevation (see Table). There was no significant difference in lumen volume. Significant P/T reduction was also noted in cases with CK-MB elevation compared to those without CK-MB elevation.
Conclusions: After conventional stenting, native coronary artery lesions with large vessel and plaque/thrombus volume are prone to subsequent CK-MB elevation. The excessive plaque/thrombus reduction in this lesion subset may indicate embolism as a potential cause for the myocardial damage.

Comparison of Volumetric IVUS Parameters

	CK-MB >2 X (n=9)	CK-MB <=2 X (n=77)	p- value
Pre-intervention Vessel	18.64±4.24	13.60±3.33	<0.0001
Pre-intervention P/T	13.70±2.67	9.52±2.80	<0.0001
P/T reduction	3.00±1.56	1.12±1.20	0.0004
Percent P/T reduction	22±11	11±10	<0.0001

11:45 a.m.

808-4 Exaggeration of Neointimal Hyperplasia Following Stent Deployment in Type B Bifurcation Lesions

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Background: Restenosis rates are considerably higher after bare metal stenting in typeB bifurcation lesions (stenosis in the main vessel, just distal to a side branch). The aim of this volumetric IVUS study was to assess the relative contribution of stent area and neointimal hyperplasia on late lumen loss in this lesion subset.
Methods: Serial IVUS analyses (pre, post-stent and 6 months follow-up) were performed in 101 left anterior descending coronary artery segments treated by bare metal stenting. Based on the location of the minimum lumen area in pre-interventional IVUS of the main vessel, segments were divided into two groups (Group I; lesions with the narrowest cross-sectional lumen area located within 3mm distal to the major side branch and Group II; lesions that did not meet this criteria). Along the stented segment, volumetric index (VI: volume/length) was calculated for the vessel, lumen, plaque, stent and neointima. Percent neointimal VI was calculated to standardize stent VI.
Results: Group I lesions were observed in 42 and Group II in 59 stented segments. At baseline, all IVUS measurements were similar between two groups. However, at 6 months follow-up, neointimal and percent neointimal VI were significantly larger in Group I lesions(Table1).
Conclusion: These observations suggest that following bare metal stent deployment, exaggeration of neointimal hyperplasia occurs more frequently in typeB bifurcation lesions, regardless of the original vessel morphometry and mechanical scaffolding.

	Group I (n=42)	**Group II** (n=59)	**p-value**
Pre-Intervention			
Lumen VI (mm^3/mm)	3.92±1.35	4.16±1.49	ns.
Vessel VI (mm^3/mm)	13.8±3.18	13.87±3.91	ns.
Plaque VI (mm^3/mm)	9.91±2.91	9.68±3.01	ns.
Post-Stent			
Lumen (stent) VI (mm^3/mm)	8.18±1.75	8.22±2.02	ns.
Vessel VI (mm^3/mm)	16.73±3.32	16.7±4.11	ns.
Plaque VI (mm^3/mm)	8.58±2.23	8.57±2.71	ns.
6-months Follow-up			
Lumen VI (mm^3/mm)	5.13±2.17	5.75±2.04	ns.
Vessel VI (mm^3/mm)	17.5±3.54	17.36±4.11	ns.
Plaque VI (mm^3/mm)	12.38±2.49	11.6±2.78	ns.
Stent VI (mm^3/mm)	8.13±1.85	8.19±1.98	ns.
Intimal VI (mm^3/mm)	3.01±1.41	2.46±1.14	0.03
% Neointimal VI (%)	38±19	31±14	0.02

Noon

808-5 Findings of Intravascular Ultrasound During Acute Stent Thrombosis

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Background: Intravascular ultrasound (IVUS) is useful to guide stent (ST) implantation, but its role in patients experiencing an episode of acute stent (ST) thrombosis has not been established. ***Methods:*** A total of 50 consecutive patients with angiographically demonstrated acute ST thrombosis were studied over a 3-year period (incidence of 1.2% of all patients treated with ST). IVUS was used in 12 patients undergoing coronary interventions for ST thrombosis to gain further mechanistic insights and to guide therapy. The remaining 38 patients were excluded due to logistic reasons, severe hemodynamic derangement or persisting angina/ECG changes after crossing the ST with the guidewire. IVUS studies were obtained before and after intervention using a motorized pull-back device. Qualitative and volumetric IVUS analyses were performed. ***Results:*** Angiographically, 10 patients had occluded vessels and 2 patients showed intraluminal filling defects within the ST. IVUS demonstrated an occlusive thrombus in all patients. Thrombus volume was 90±77 mm^3 which represented 51±21% of total ST volume. Most patients showed evidence of severe ST under-expansion and no patient fulfilled standard criteria for optimal ST implantation. ST malapposition was detected in 4 patients, edge dissections were seen in 2 patients and significant inflow-outflow disease was present in 11 patients. During interventions IVUS findings led to the use of higher pressures or larger balloons than those used during initial stenting in 10 patients. In addition, 4 patients required additional stenting whereas a thrombectomy device “alone” was selected in 1 patient. After the procedure final minimal ST area (7.1±2.1 vs 5.3±2 mm^2, p<0.005) and ST expansion (83.2±17 vs 62.1±15%, p<0.005) improved as compared with pre-interventional values. However, residual lining thrombus could still be visualized in 8 patients (25±19 mm^3 accounting for a 17% of final ST volume). ***Conclusions:*** IVUS provides an attractive technique to fully characterize the pattern of ST thrombosis, to readily identify underlying mechanical predisposing factors and to guide repeated coronary interventions.